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May 29, 2009 08031L03.WP

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FINAL TRAFFIC IMPACT ANALYSIS FOR THE ESTRELLA RIVER VINEYARD AGRICULTURAL CLUSTER SUBDIVISION (TRACT 2905), COUNTY OF SAN LUIS OBISPO COUNTY

Associated Transportation Engineers (ATE) has completed this final traffic impact analysis for the Estrella River Vineyard Agricultural Cluster Subdivision (Tract 2905), proposed in the Paso Robles area of San Luis Obispo County. ATE previously prepared a traffic study that assumed a 24-lot subdivision and that study was reviewed by the County and Caltrans. The application has been revised to include a 18-lot subdivision. The traffic study has been revised to assess the 18-lot subdivision as well as to address the comments provided by Caltrans and the County. The study revisions include:

1. Revised to address 18-lot subdivision.

2. Analysis of the SR 46E/Jardine Road intersection for the Friday P.M. peak hour period (in addition to the weekday A.M. and P.M. peak periods).

3. Revised intersection LOS modeling for the SR 46E/Jardine Road intersection to be consistent with the analysis prepared for the Golden Hill Retail Center.[1]

4. Revised cumulative analysis using the Year 2030 forecasts contained in the Golden Hill Retail Center traffic study.

5. Inclusion of mitigation contribution text for cumulative impacts.

[1] Golden Hill Retail Center, Final Transportation Impact Analysis, Fehr & Peers, April 2007.

PROJECT DESCRIPTION

The project site is located adjacent to Estrella Road just east of Jardine Road in the Paso Robles area as shown in Figure 1. The land owners have submitted an application to the County for an Agricultural Cluster Subdivision to develop 18 single family homes. Figure 2 shows the project site plan. Access to the site is proposed via two roadways connecting to Estrella Road. The two roadways connect within the site, with a loop road serving the 18 single family units in the southwest area of the property (see Figure 2).

EXISTING CONDITIONS

Street Network

The project is served by State Route 46 East (SR 46E), Jardine Road, and Estrella Road (see Figure 1). The following text provides a brief discussion of the study-area roadways.

SR 46E, located south of the project site, is an east-west State highway. Within the Paso Robles area, SR 46E extends as a four-lane divided highway from U.S. Highway 101 to east of Airport Road. SR 46E narrows to two-lanes east of Airport Road and continues east past Jardine Road to the San Joaquin Valley.

Jardine Road, located west of the project site, is a north-south two-lane County road that extends from SR 46E to Estrella Road. The SR 46E/Jardine Road intersection is controlled by STOP signs (Jardine Road stopped).

Estrella Road, located north of the project site, is an east-west County road that extends east from Jardine Road to SR 46E and west from Jardine Road to River Road near San Miguel. The project site fronts the south side of Estrella Road just east of Jardine Road.

Intersection Operations

Traffic flow on roadway networks is most constrained at intersections, therefore a detailed traffic flow analysis examines the operating conditions of critical intersections during peak travel periods. "Level of Service" (LOS) A through F are used to rate intersection operations, with LOS A indicating free flow operations and LOS F indicating congested operations (more complete definitions of levels of service are attached). San Luis Obispo County and Caltrans consider LOS C as the minimum operating standard for the Paso Robles area.

The SR 46E/Jardine Road intersection is the key intersection identified for assessing potential impacts generated by the Estrella River Vineyard Agricultural Cluster Subdivision. The existing lane geometry for the intersection is shown on Figure 3. The existing weekday A.M. and P.M. peak hour traffic volumes and Friday P.M. peak hour traffic volumes are shown on Figure 4. The traffic volumes were obtained from the traffic study prepared for the Golden Hill Retail

Center traffic study. Levels of service were calculated for the intersection using the methodology outlined in the Highway Capacity Manual (HCM)[2]. The SR 46E/Jardine Road intersection is *unsignalized* (stop sign controlled on the Jardine Road approach). The County and Caltrans LOS C standard applies to each of the constrained movements at the intersection.

Table 1 lists the existing levels of service for the intersection (level of service calculation worksheets are attached). As shown, the levels of service for the southbound left- and right-turn movements from Jardine Road intersection currently exceed the LOS C standard.

Table 1
SR 46E/Jardine Road
Existing Levels of Service

Movement	Delay / LOS[a]		
	Weekday A.M. Peak	Weekday P.M. Peak	Friday Peak
EB Left	8.9 Sec/LOS A	10.6 Sec/LOS B	13.5 Sec/LOS B
WB Left	8.2 Sec/LOS A	8.9 Sec/LOS A	9.8 Sec/LOS A
SB Left	33.1 Sec/LOS D	>50 Sec/LOS F	>50 Sec/LOS F
SB Right	18.8 Sec/LOS C	18.8 Sec/LOS C	36.7 Sec/LOS E

[a] LOS based on average number of seconds of delay per vehicle.

THRESHOLDS OF SIGNIFICANCE

San Luis Obispo County

The County has adopted LOS C as the minimum standard for intersection operations in rural areas of the County, with mitigation required for LOS D, LOS E and LOS F operations.

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[2] Highway Capacity Manual, Transportation Research Board, National Research Council, 2000.

Caltrans Traffic Study Guidelines

According to Caltrans' Guide for the Preparation of Traffic Impact Studies, Caltrans endeavors to maintain a target LOS at the transition between LOS C and LOS D for State facilities[3]. The transition between LOS C and LOS D equates to LOS C. Thus, Caltrans endeavors to maintain a target of LOS C for State facilities.

PROJECT-GENERATED TRAFFIC VOLUMES

Trip Generation

Trip generation estimates were calculated for the project based on the Single Family Detached Housing (Land-Use Code #210) rates presented in the Institute of Transportation Engineers (ITE) Trip Generation Manual.[4] Table 2 summarizes the trip generation estimates for the proposed project. The project is assumed to generate the same number of trips during the Friday P.M. peak hour as the typical weekday P.M. peak hour.

Table 2
Project Trip Generation

Land Use	Size	ADT		A.M. Peak Hour		P.M. Peak Hour	
		Rate	Trips	Rate	Trips	Rate	Trips
Single Family Detached Housing	18 Units	9.57	172	0.75	14	1.01	18

The data presented in Table 2 show that the project would generate 172 average daily trips, with 14 trips occurring during the weekday A.M. peak hour period and 18 trips occurring during the weekday and Friday P.M. peak hour periods.

Trip Distribution

Project-generated traffic was distributed and assigned to the study-area roadway network based on the percentages shown in Table 3 and presented on Figure 6. The trip distribution percentages were developed based on the existing traffic pattern at the SR 46E/Jardine Road intersection and consideration of the population, employment, and commercial centers in the Paso Robles area.

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[3] Caltrans Guide for the Preparation of Traffic Impact Studies, Caltrans, December 2002.

[4] Trip Generation, Institute of Transportation Engineers, 8th edition, 2008.

Table 3
Project Trip Distribution

Origin/Destination	Direction	Percentage
SR 46E east of Jardine Road	East	10%
SR 46E west of Jardine Road	West	90%
Total		**100%**

PROJECT-SPECIFIC ANALYSIS

Levels of service were calculated for the SR 46E/Jardine Road intersection with the Existing + Project traffic volumes presented on Figure 7. Table 4 compares the Existing and Existing + Project levels of service and identifies project-specific impacts.

Table 4
SR 46E/Jardine Road
Existing & Existing + Project Levels of Service

Peak Hour/Movement	Delay / LOS[a]		
	Existing	Existing + Project	Impact?
Weekday A.M. Peak			
EB Left	8.9 Sec/LOS A	9.0 Sec/LOS A	
WB Left	8.2 Sec/LOS A	8.2 Sec/LOS A	YES
SB Left	33.1 Sec/LOS D	34.0 Sec/LOS D	
SB Right	18.8 Sec/LOS C	19.4 Sec/LOS C	
Weekday P.M. Peak			
EB Left	10.6 Sec/LOS B	10.7 Sec/LOS B	
WB Left	8.9 Sec/LOS A	8.9 Sec/LOS A	YES
SB Left	>50 Sec/LOS F	>50 Sec/LOS F	
SB Right	18.8 Sec/LOS C	19.1 Sec/LOS C	
Friday P.M. Peak			
EB Left	13.5 Sec/LOS B	13.7 Sec/LOS B	
WB Left	9.8 Sec/LOS A	9.8 Sec/LOS A	YES
SB Left	>50 Sec/LOS F	>50 Sec/LOS F	
SB Right	36.7 Sec/LOS E	38.8 Sec/LOS E	

[a] LOS based on average number of seconds of delay per vehicle.

The data presented in Table 4 show that several of the movements at the SR 46E/Jardine Road intersection are forecast to operate at LOS D, E or F during the peak hour periods. The project would add 14 trips to the intersection during the weekday A.M. peak hour period and 18 trips to the intersection during the weekday and Friday P.M. peak hour periods, a potentially significant impact.

Mitigation

SR 46E currently extends as a four-lane divided highway from U.S. Highway 101 to east of Airport Road and continues as a two-lane highway east of that point. Caltrans has initiated a project to widen the two-lane section to a four-lane divided highway between Airport Road and the SR 46E/SR 41 junction. Construction on the first phase of the widening project, from Airport Road to Geneseo Road, is scheduled to be completed in 2010. This phase includes improvements to the intersections along the reach, including the SR 46E/Jardine Road intersection. Figure 5 shows the improvements that have been designed for the SR 46E/Jardine Road intersection, which are summarized below.

Eastbound Approach: One left-turn lane, one thru lane, one thru + right-turn lane.
Westbound Approach: One left-turn lane, two thru lanes, one right-turn lane.
Northbound Approach: One left + thru + right-turn lane.
Southbound Approach: One left + thru lane, one right-turn lane (with acceleration lane).

The intersection will remain STOP-sign controlled on the minor approach legs (Jardine Road). The eastbound and westbound left-turn lanes will continue through the intersection as acceleration lanes for the left-turns from the northbound and southbound approaches. These acceleration lanes will allow for a two-stage gap acceptance for left-turning vehicles from the minor approaches. This design feature will allow vehicles to cross one major approach leg and use the acceleration lanes in the median area for merging into the through traffic flows. An acceleration lane is also provided on westbound SR 46E to facilitate the southbound right-turn from Jardine Road onto SR 46E.

Existing + Project levels of service were calculated for the SR 46E/Jardine Road intersection assuming the planned improvements. Table 5 compares the Existing + Project levels of service with and without the improvements. The side street movements will operate with lower vehicular delays with the proposed improvements when compared to Existing conditions, thereby mitigating the project's impact.

Table 5
SR 46E/Jardine Road
Existing + Project Mitigated Levels of Service

Peak Hour/Movement	Delay / LOS[a]	
	Existing Geometry	With Mitigation
Weekday A.M. Peak		
EB Left	9.0 Sec/LOS A	8.8 Sec/LOS A
WB Left	8.2 Sec/LOS A	8.1 Sec/LOS A
SB Left	34.0 Sec/LOS D	12.6 Sec/LOS B
SB Right	19.4 Sec/LOS C	13.2 Sec/LOS B
Weekday P.M. Peak		
EB Left	10.7 Sec/LOS B	10.6 Sec/LOS B
WB Left	8.9 Sec/LOS A	9.0 Sec/LOS A
SB Left	>50 Sec/LOS F	20.3 Sec/LOS C
SB Right	19.1 Sec/LOS C	12.8 Sec/LOS B
Friday P.M. Peak		
EB Left	13.7 Sec/LOS B	13.5 Sec/LOS B
WB Left	9.8 Sec/LOS A	9.9 Sec/LOS A
SB Left	>50 Sec/LOS F	26.7 Sec/LOS D
SB Right	38.8 Sec/LOS E	16.1 Sec/LOS C

[a] LOS based on average number of seconds of delay per vehicle.

CUMULATIVE ANALYSIS

Cumulative Traffic Volumes

Pursuant to the direction of County staff, Cumulative traffic volume forecasts were taken from the Year 2030 forecasts contained in the Golden Hill Retail Center traffic study. Figures 8 and 9 show the Cumulative and the Cumulative + Project peak hour traffic forecasts.

Intersection Operations

Levels of service were calculated for the SR 46E/Jardine Road intersection assuming the Cumulative and the Cumulative + Project peak hour traffic forecasts. The level of service analysis assumes completion of the planned improvements at the intersection (widening SR 46E to four lanes and adding lanes at the SR 46E/Jardine Road intersection). Table 6 compares the Cumulative and Cumulative + Project levels of service.

Table 6
SR 46E/Jardine Road
Cumulative & Cumulative + Project Levels of Service

Peak Hour/Movement	Delay / LOS[a]		
	Cumulative	Cumulative + Project	Impact?
Weekday A.M. Peak			
EB Left	20.9 Sec/LOS C	21.1 Sec/LOS C	
WB Left	10.6 Sec/LOS B	10.6 Sec/LOS B	YES
SB Left	>50 Sec/LOS F	>50 Sec/LOS F	
SB Right	>50 Sec/LOS F	>50 Sec/LOS F	
Weekday P.M. Peak			
EB Left	>50 Sec/LOS F	>50 Sec/LOS F	
WB Left	15.8 Sec/LOS C	15.8 Sec/LOS C	YES
SB Left	>50 Sec/LOS F	>50 Sec/LOS F	
SB Right	>50 Sec/LOS F	>50 Sec/LOS F	
Friday P.M. Peak			
EB Left	>50 Sec/LOS F	>50 Sec/LOS F	
WB Left	21.7 Sec/LOS C	21.7 Sec/LOS C	YES
SB Left	>50 Sec/LOS F	>50 Sec/LOS F	
SB Right	>50 Sec/LOS F	>50 Sec/LOS F	

[a] LOS based on average number of seconds of delay per vehicle.

The analysis shows that the SR 46E/Jardine Road intersection is forecast to operate at LOS F under Cumulative conditions without the Estrella River Vineyard Agricultural Cluster Subdivision Project. The project would contribute to the cumulative impact by adding 14 trips to the intersection during the weekday A.M. peak period and 18 trips to the intersection during the weekday and Friday P.M. peak hour periods.

Mitigation

Payment of applicable City/County fees would mitigate the project's cumulative impact to the intersection. Caltrans is in the process of developing a corridor plan for SR 46, with publication and adoption scheduled for the first half of 2009. The plan will identify future improvements for the corridor from U.S. Highway 101 to the San Luis Obispo/Kern county line. The intent is to have the plan integrated into the Regional Transportation Plan, as well as the County's Infrastructure Plan and the City of Paso Robles Circulation Element Plan. Funding for the future improvements would come from Federal, State, and local levels. The local funds would be collected via AB 1600 fee programs or other funding mechanism(s) established by the City of Paso Robles and County of San Luis Obispo. The Estrella River

Vineyard Agricultural Cluster Subdivision Project would be subject to the fee programs that are in place at the time of occupancy.

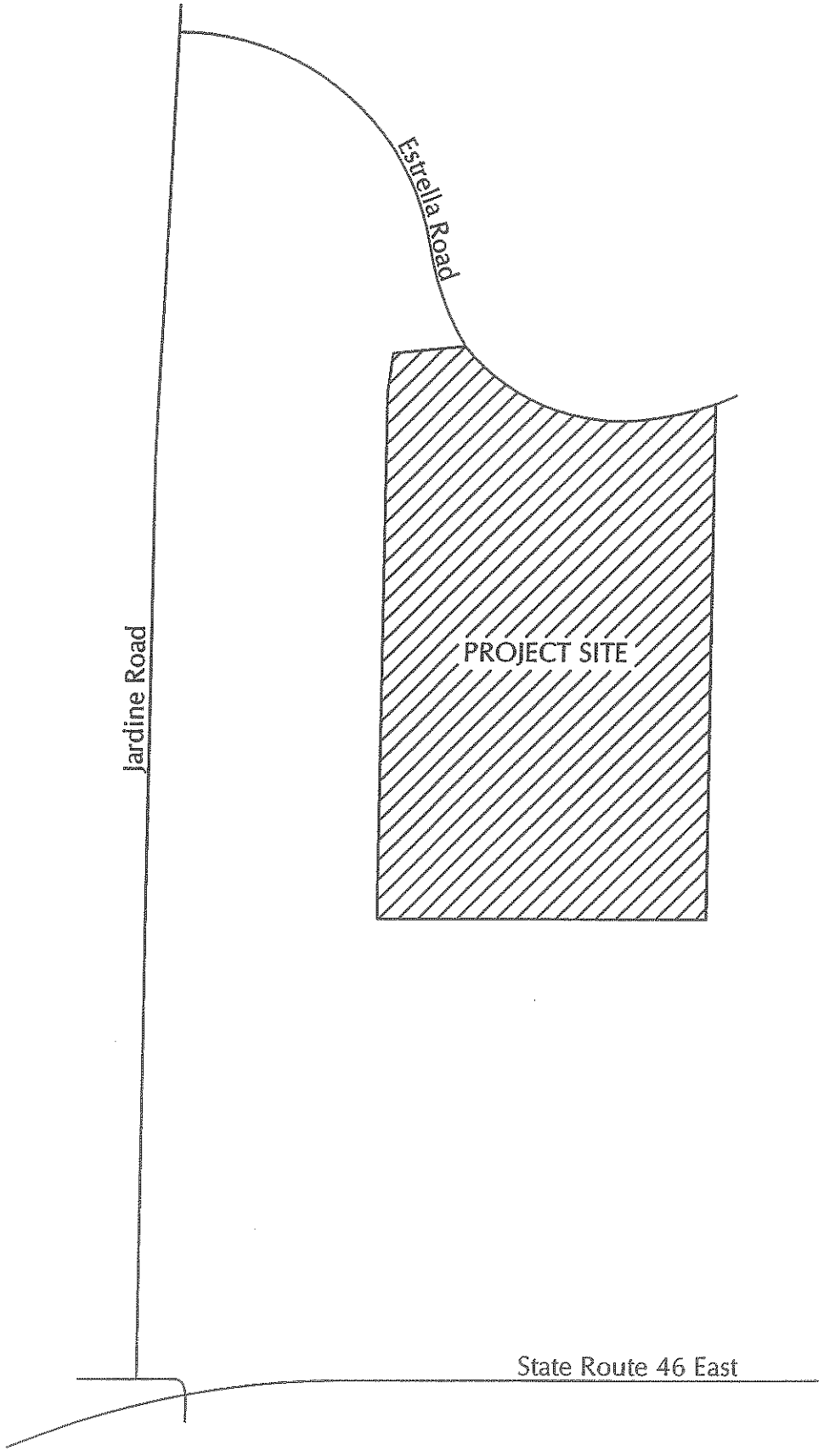
This concludes our traffic impact analysis for the Estrella River Vineyard Agricultural Cluster Subdivision (Tract 2905). We appreciate the opportunity to assist you with the project.

Associated Transportation Engineers

Scott A. Schell, AICP, PTP
Principal Transportation Planner

SAS/DLD/JJK

attachments



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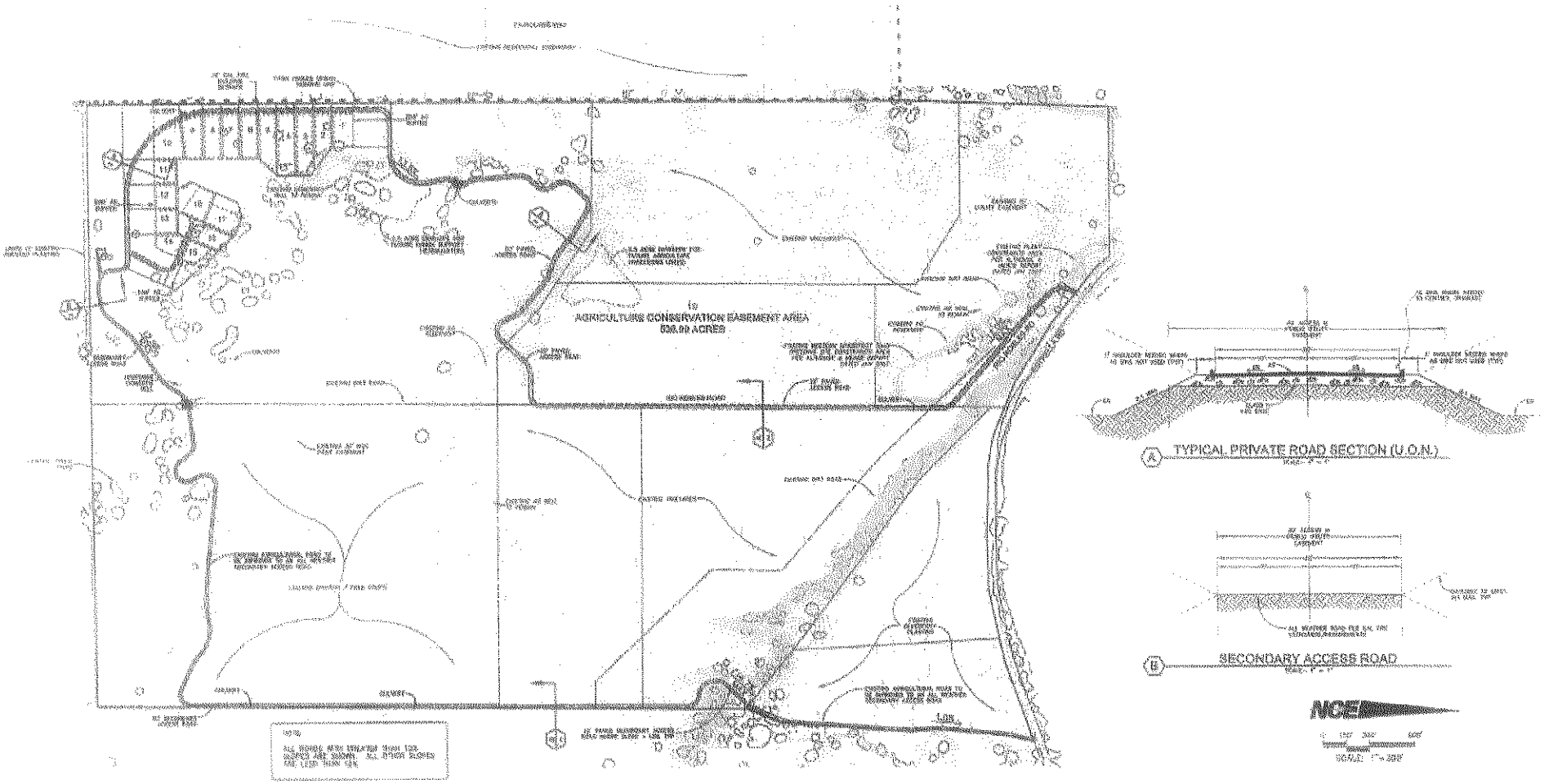
EXISTING STREET NETWORK AND PROJECT SITE LOCATION

FIGURE 1

JJK - 08031



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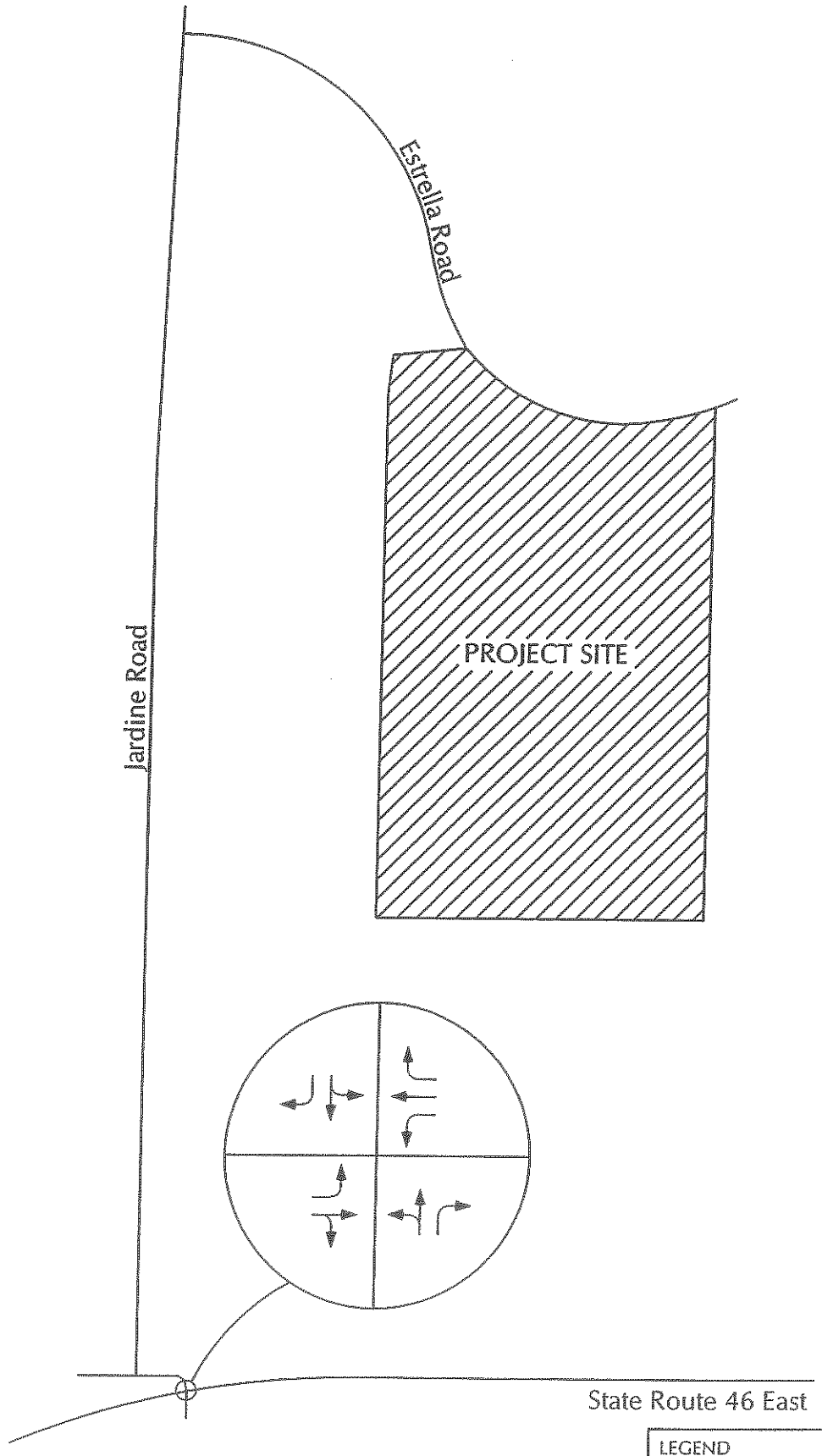
PROJECT SITE PLAN

FIGURE 2

JJK - 08031



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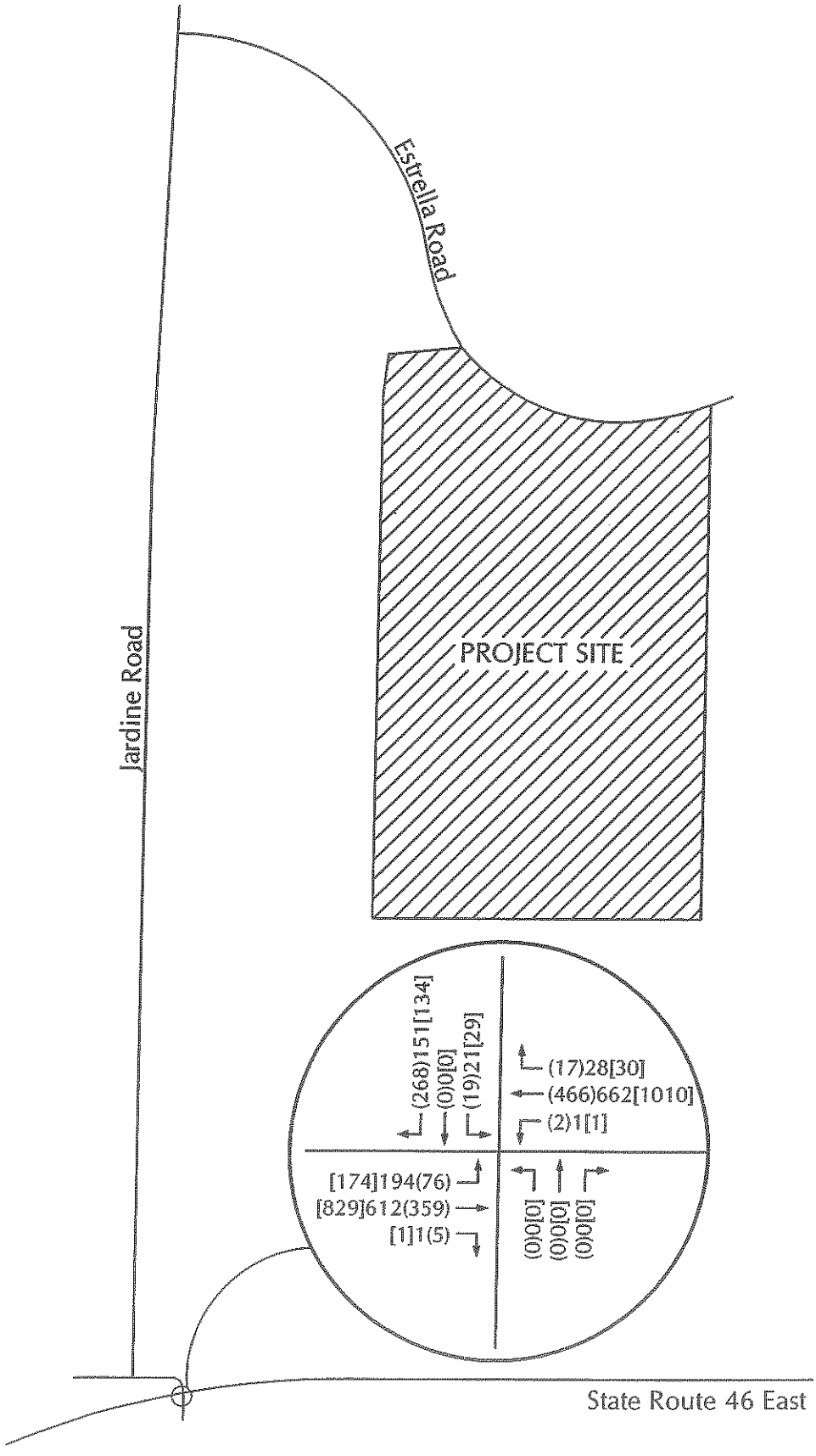
EXISTING INTERSECTION LANE GEOMETRIES

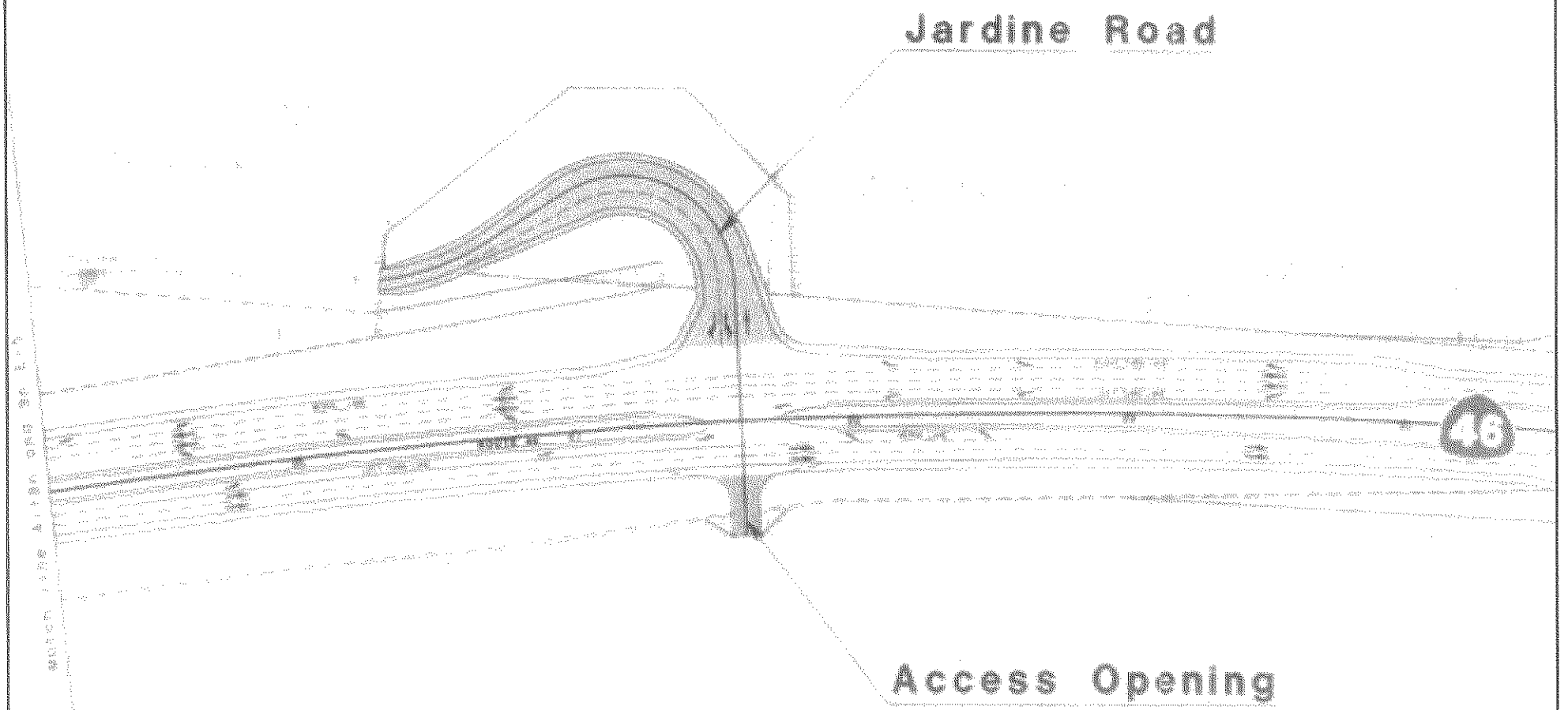
FIGURE 3

JJK - 08031



LEGEND

└(XX)XX[XX] - (A.M.)P.M.[Friday] Peak Hour Volume



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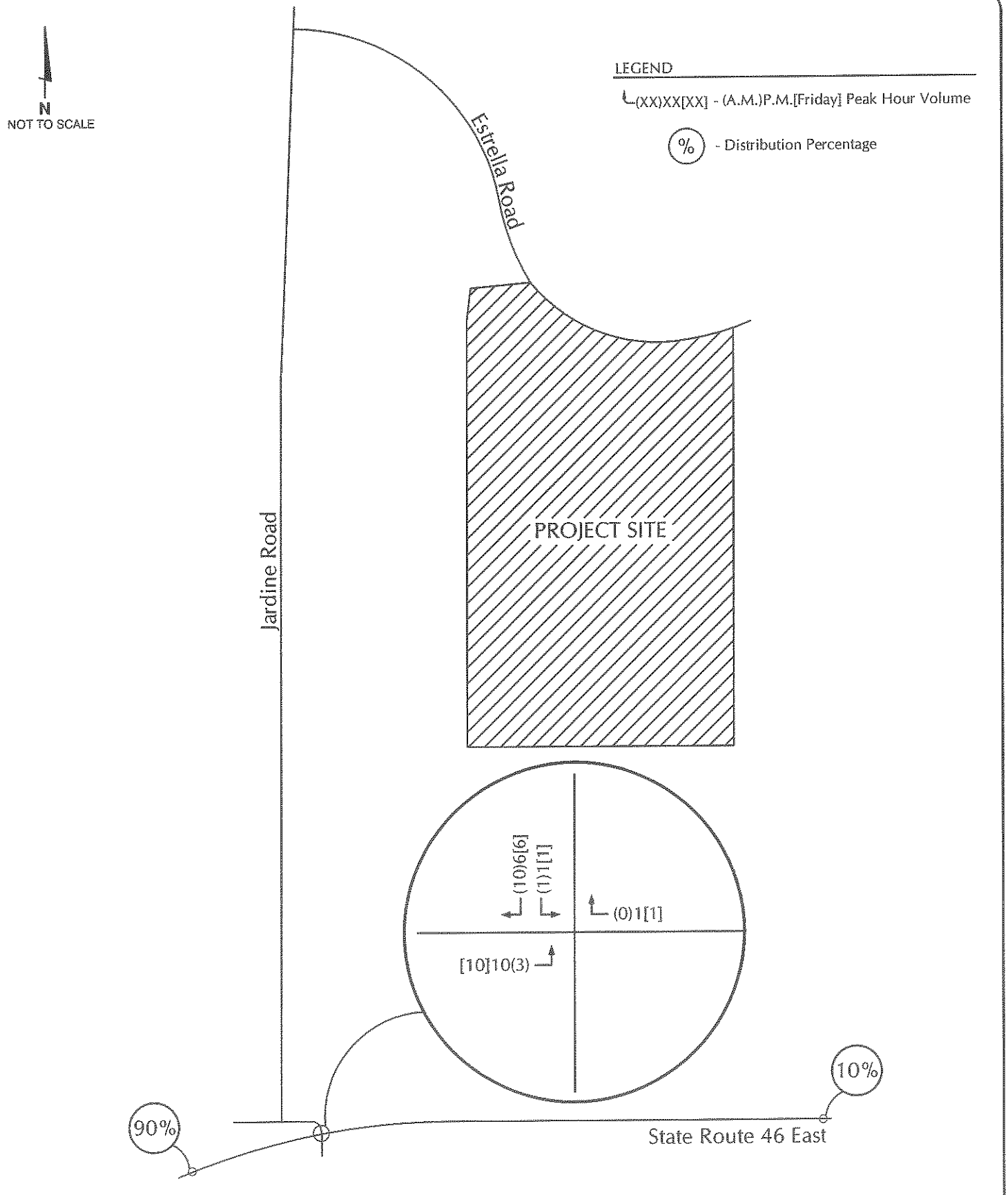
FUTURE INTERSECTION LANE GEOMETRIES

FIGURE 5

JJK - 08031



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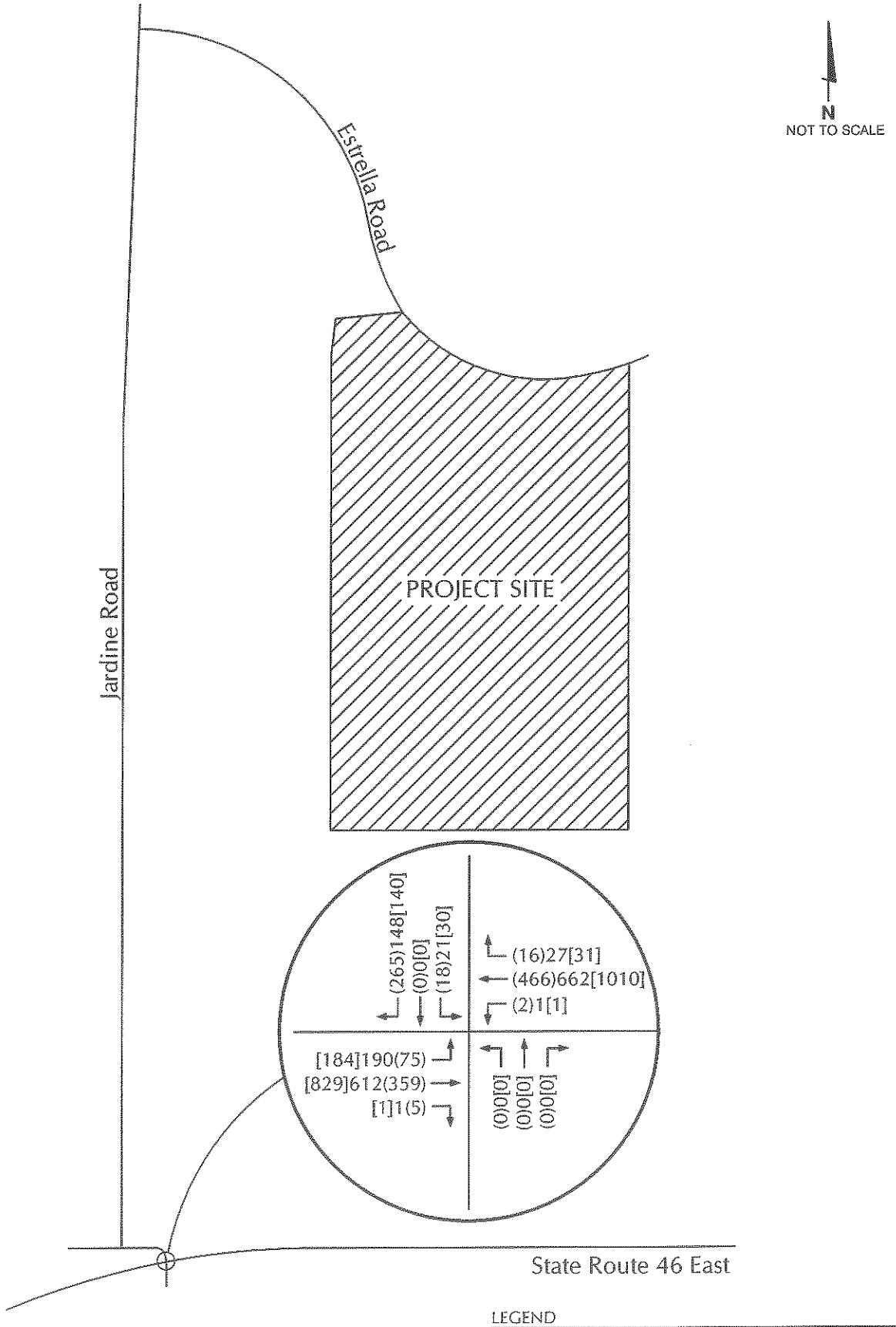
PROJECT TRIP DISTRIBUTION AND ASSIGNMENT

FIGURE 6

JJK - 08031



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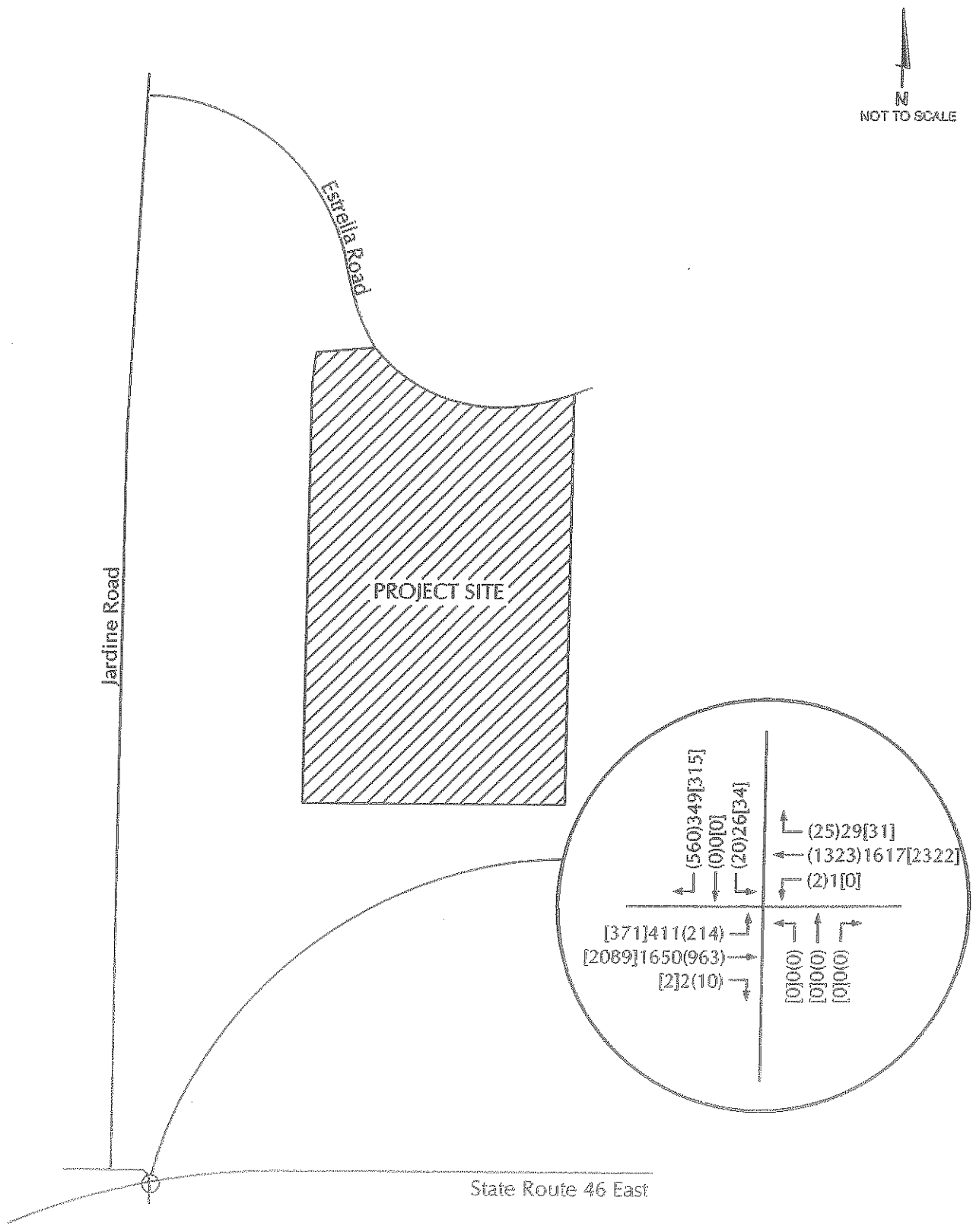
EXISTING + PROJECT TRAFFIC VOLUMES

FIGURE 7

JJK - 08031



LEGEND

└(XX)XX[XX] - (A.M.)P.M.[Friday] Peak Hour Volume

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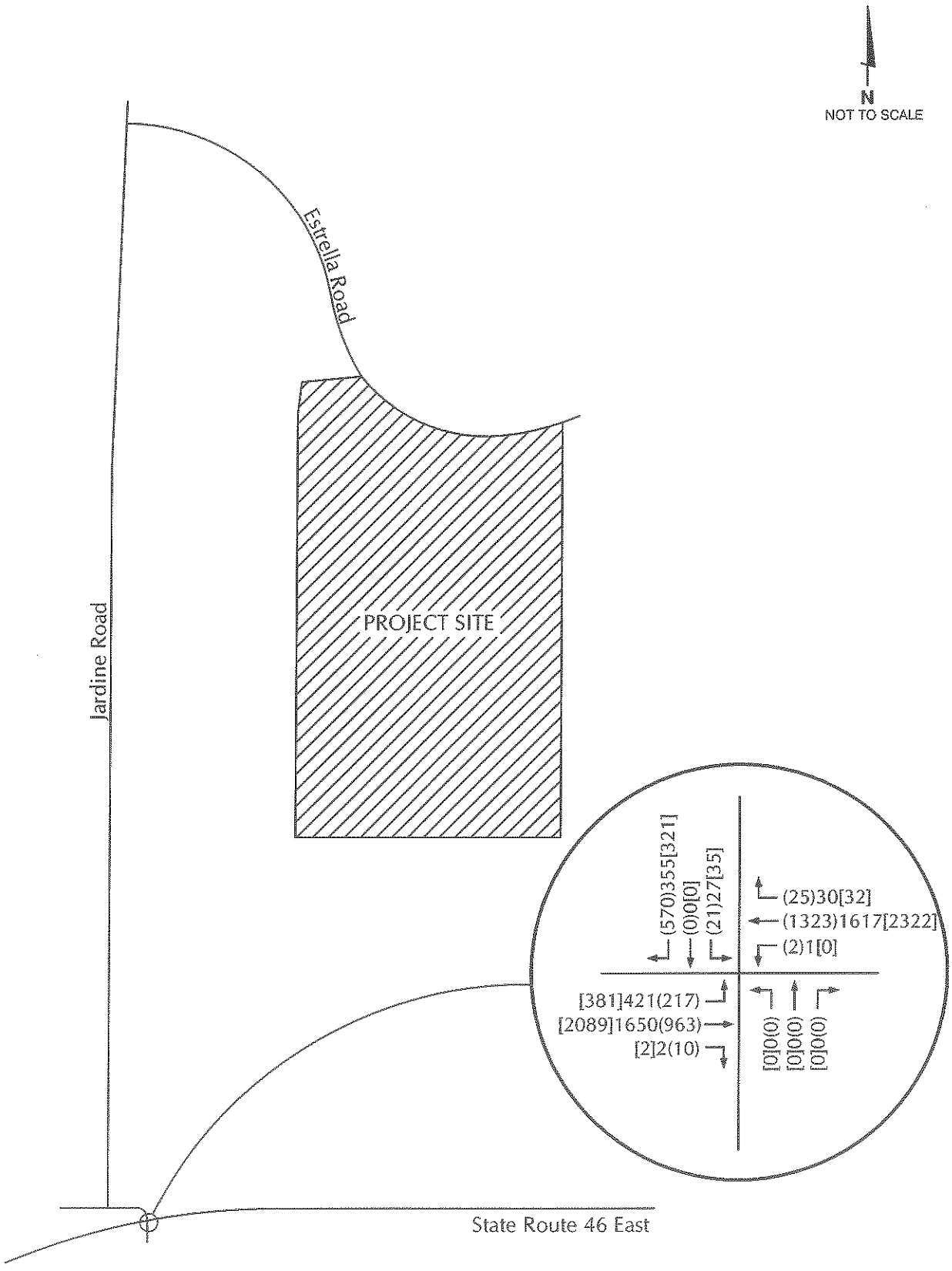
CUMULATIVE TRAFFIC VOLUMES

FIGURE 8

JJK - 08031



LEGEND

└(XX)XX[XX] - (A.M.)P.M.[Friday] Peak Hour Volume

Signalized Intersection Level of Service Definitions

LOS	Delay[a]	V/C Ratio	Definition
A	< 10.0	< 0.60	Progression is extremely favorable. Most vehicles arrive during the green phase. Many vehicles do not stop at all.
B	10.1 - 20.0	0.61 - 0.70	Good progression, short cycle lengths, or both. More vehicles stop than with LOS A, causing higher levels of delay.
C	20.1 - 35.0	0.71 - 0.80	Only fair progression, longer cycle lengths, or both, result in higher cycle lengths. Cycle lengths may fail to serve queued vehicles, and overflow occurs. Number of vehicles stopped is significant, though many still pass through intersection without stopping.
D	35.1 - 55.0	0.81 - 0.90	Congestion becomes more noticeable. Unfavorable progression, long cycle lengths and high v/c ratios result in longer delays. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.
E	55.1 - 80.0	0.91 - 1.00	High delay values indicate poor progression, long cycle lengths and high v/c ratios. Individual cycle failures are frequent
F	> 80.0	> 1.00	Considered unacceptable for most drivers, this level occurs when arrival flow rates exceed the capacity of lane groups, resulting in many individual cycle failures. Poor progression and long cycle lengths may also contribute to high delay levels.

[a] Average control delay per vehicle in seconds.

Unsignalized Intersection Level of Service Definitions

The HCM[1] uses *control delay* to determine the level of service at unsignalized intersections. Control delay is the difference between the travel time actually experienced at the control device and the travel time that would occur in the absence of the traffic control device. Control delay includes deceleration from free flow speed, queue move-up time, stopped delay and acceleration back to free flow speed.

LOS	Control Delay Seconds per Vehicle
A	< 10.0
B	10.1 - 15.0
C	15.1 - 25.0
D	25.1 - 35.0
E	35.1 - 50.0
F	> 50.0

[1] Highway Capacity Manual, National Research Board, 2000

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*DLD*
Agency/Co.	*ATE*
Date Performed	*12/1/08*
Analysis Time Period	*AM PEAK HOUR*

Site Information

Intersection	*STATE ROUTE 46 E/JARDINE ROAD*
Jurisdiction	*SAN LUIS OBISPO COUNTY*
Analysis Year	*EXISTING*

Project Description *ESTELLA RIVER VINEYARD PROJECT #08031*

East/West Street: *STATE ROUTE 46 EAST* | North/South Street: *JARDINE ROAD*

Intersection Orientation: *East-West* | Study Period (hrs): *1.00*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*76*	*359*	*5*	*2*	*466*	*17*
Peak-Hour Factor, PHF	*0.83*	*0.83*	*0.95*	*0.95*	*0.87*	*0.87*
Hourly Flow Rate, HFR (veh/h)	*91*	*432*	*5*	*2*	*535*	*19*
Percent Heavy Vehicles	*4*	--	--	*4*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*1*	*1*	*1*
Configuration	*L*		*TR*	*L*	*T*	*R*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*0*	*0*	*0*	*19*	*0*	*268*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.59*	*0.95*	*0.95*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*32*	*0*	*282*
Percent Heavy Vehicles	*4*	*4*	*4*	*4*	*4*	*4*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*1*	*0*	*1*	*1*
Configuration	*LT*		*R*	*LT*		*R*

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*L*	*LT*		*R*	*LT*		*R*
v (veh/h)	*91*	*2*	*0*		*0*	*32*		*282*
C (m) (veh/h)	*1006*	*1112*			*618*	*160*		*541*
v/c	*0.09*	*0.00*			*0.00*	*0.20*		*0.52*
95% queue length	*0.30*	*0.01*			*0.00*	*0.74*		*3.19*
Control Delay (s/veh)	*8.9*	*8.2*			*10.8*	*33.1*		*18.8*
LOS	*A*	*A*			*B*	*D*		*C*
Approach Delay (s/veh)	--	--				*20.3*		
Approach LOS	--	--				*C*		

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	DLD	Intersection	STATE ROUTE 46 E/JARDINE ROAD
Agency/Co.	ATE	Jurisdiction	SAN LUIS OBISPO COUNTY
Date Performed	5/26/09	Analysis Year	EXISTING+PROJECT
Analysis Time Period	AM PEAK HOUR		

Project Description	ESTELLA RIVER VINEYARD PROJECT #08031
East/West Street:	STATE ROUTE 46 EAST
North/South Street:	JARDINE ROAD
Intersection Orientation:	East-West
Study Period (hrs):	1.00

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	79	359	5	2	466	17
Peak-Hour Factor, PHF	0.83	0.83	0.95	0.95	0.87	0.87
Hourly Flow Rate, HFR (veh/h)	95	432	5	2	535	19
Percent Heavy Vehicles	4	--	--	4	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	1	1	0	1	1	1
Configuration	L		TR	L	T	R
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	0	0	0	20	0	278
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.59	0.95	0.95
Hourly Flow Rate, HFR (veh/h)	0	0	0	33	0	292
Percent Heavy Vehicles	4	4	4	4	4	4
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	1	0	1	1
Configuration	LT		R	LT		R

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L	L	LT		R	LT		R
v (veh/h)	95	2	0		0	33		292
C (m) (veh/h)	1006	1112			618	157		541
v/c	0.09	0.00			0.00	0.21		0.54
95% queue length	0.31	0.01			0.00	0.79		3.42
Control Delay (s/veh)	9.0	8.2			10.8	34.0		19.4
LOS	A	A			B	D		C
Approach Delay (s/veh)	--	--				20.9		
Approach LOS	--	--				C		

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	DLD
Agency/Co.	ATE
Date Performed	5/26/09
Analysis Time Period	AM PEAK HOUR

Site Information

Intersection	STATE ROUTE 46 E/JARDINE ROAD
Jurisdiction	SAN LUIS OBISPO COUNTY
Analysis Year	EX+PROJECT WITH IMPROVEMENTS

Project Description	ESTELLA RIVER VINEYARD PROJECT #08031
East/West Street:	STATE ROUTE 46 EAST
North/South Street:	JARDINE ROAD
Intersection Orientation:	East-West
Study Period (hrs):	1.00

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	79	359	5	2	466	17
Peak-Hour Factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Hourly Flow Rate, HFR (veh/h)	85	390	5	2	506	18
Percent Heavy Vehicles	4	--	--	4	--	--
Median Type	Two Way Left Turn Lane					
RT Channelized			0			1
Lanes	1	2	0	1	2	1
Configuration	L	T	TR	L	T	R
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	0	0	0	20	0	278
Peak-Hour Factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Hourly Flow Rate, HFR (veh/h)	0	0	0	21	0	302
Percent Heavy Vehicles	4	4	4	4	4	4
Percent Grade (%)	0			0		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	1	0	1	1
Configuration	LT		R	LT		R

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L	L	LT		R	LT		R
v (veh/h)	85	2	0		0	21		302
C (m) (veh/h)	1041	1146			804	495		740
v/c	0.08	0.00			0.00	0.04		0.41
95% queue length	0.27	0.01			0.00	0.13		2.05
Control Delay (s/veh)	8.8	8.1			9.5	12.6		13.2
LOS	A	A			A	B		B
Approach Delay (s/veh)	--	--				13.2		
Approach LOS	--	--				B		

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	DLD	Intersection	STATE ROUTE 46 E/JARDINE ROAD
Agency/Co.	ATE	Jurisdiction	SAN LUIS OBISPO COUNTY
Date Performed	10/16/08	Analysis Year	CUMULATIVE (2030)
Analysis Time Period	AM PEAK HOUR		

Project Description	ESTELLA RIVER VINEYARD PROJECT #08031
East/West Street:	STATE ROUTE 46 EAST
North/South Street:	JARDINE ROAD
Intersection Orientation:	East-West
Study Period (hrs):	1.00

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	214	963	10	0	1323	25
Peak-Hour Factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Hourly Flow Rate, HFR (veh/h)	232	1046	10	0	1438	27
Percent Heavy Vehicles	4	--	--	4	--	--
Median Type	Two Way Left Turn Lane					
RT Channelized			0			1
Lanes	1	2	0	1	2	1
Configuration	L	T	TR	L	T	R
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	0	0	0	20	0	560
Peak-Hour Factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Hourly Flow Rate, HFR (veh/h)	0	0	0	21	0	608
Percent Heavy Vehicles	4	4	4	4	4	4
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	1	0	1	1
Configuration	LT		R	LT		R

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L	L	LT		R	LT		R
v (veh/h)	232	0	0		0	21		608
C (m) (veh/h)	458	643			490			366
v/c	0.51	0.00			0.00			1.66
95% queue length	3.00	0.00			0.00			128.12
Control Delay (s/veh)	20.9	10.6			12.3			1229
LOS	C	B			B			F
Approach Delay (s/veh)	--	--						
Approach LOS	--	--						

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	DLD	Intersection	STATE ROUTE 46 E/JARDINE ROAD
Agency/Co.	ATE	Jurisdiction	SAN LUIS OBISPO COUNTY
Date Performed	5/26/09	Analysis Year	CUMULATIVE (2030) + PROJECT
Analysis Time Period	AM PEAK HOUR		

Project Description	ESTELLA RIVER VINEYARD PROJECT #08031
East/West Street:	STATE ROUTE 46 EAST
North/South Street:	JARDINE ROAD
Intersection Orientation:	East-West
Study Period (hrs):	1.00

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	217	963	10	0	1323	25
Peak-Hour Factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Hourly Flow Rate, HFR (veh/h)	235	1046	10	0	1438	27
Percent Heavy Vehicles	4	--	--	4	--	--
Median Type	Two Way Left Turn Lane					
RT Channelized			0			1
Lanes	1	2	0	1	2	1
Configuration	L	T	TR	L	T	R
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	0	0	0	21	0	570
Peak-Hour Factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Hourly Flow Rate, HFR (veh/h)	0	0	0	22	0	619
Percent Heavy Vehicles	4	4	4	4	4	4
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	1	0	1	1
Configuration	LT		R	LT		R

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L	L	LT		R	LT		R
v (veh/h)	235	0	0		0	22		619
C (m) (veh/h)	458	643			490			366
v/c	0.51	0.00			0.00			1.69
95% queue length	3.08	0.00			0.00			133.46
Control Delay (s/veh)	21.1	10.6			12.3			1283
LOS	C	B			B			F
Approach Delay (s/veh)	--	--						
Approach LOS	--	--						

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*DLD*	Intersection	*STATE ROUTE 46 E/JARDINE ROAD*
Agency/Co.	*ATE*	Jurisdiction	*SAN LUIS OBISPO COUNTY*
Date Performed	*10/16/08*	Analysis Year	*EXISTING*
Analysis Time Period	*PM PEAK HOUR*		

Project Description	*ESTELLA RIVER VINEYARD PROJECT #08031*		
East/West Street:	*STATE ROUTE 46 EAST*	North/South Street:	*JARDINE ROAD*
Intersection Orientation:	*East-West*	Study Period (hrs):	*1.00*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*194*	*612*	*1*	*1*	*662*	*28*
Peak-Hour Factor, PHF	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*
Hourly Flow Rate, HFR (veh/h)	*210*	*665*	*1*	*1*	*719*	*30*
Percent Heavy Vehicles	*4*	--	--	*4*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*1*	*1*	*1*
Configuration	*L*		*TR*	*L*	*T*	*R*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*0*	*0*	*0*	*21*	*0*	*151*
Peak-Hour Factor, PHF	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*22*	*0*	*164*
Percent Heavy Vehicles	*4*	*4*	*4*	*4*	*4*	*4*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*1*	*0*	*1*	*1*
Configuration	*LT*		*R*	*LT*		*R*

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*L*	*LT*		*R*	*LT*		*R*
v (veh/h)	*210*	*1*	*0*		*0*	*22*		*164*
C (m) (veh/h)	*851*	*914*			*456*	*49*		*425*
v/c	*0.25*	*0.00*			*0.00*	*0.45*		*0.39*
95% queue length	*0.98*	*0.00*			*0.00*	*2.11*		*1.86*
Control Delay (s/veh)	*10.6*	*8.9*			*12.9*	*135.1*		*18.8*
LOS	*B*	*A*			*B*	*F*		*C*
Approach Delay (s/veh)	--	--				*32.5*		
Approach LOS	--	--				*D*		

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*DLD*	Intersection	*STATE ROUTE 46 E/JARDINE ROAD*
Agency/Co.	*ATE*	Jurisdiction	*SAN LUIS OBISPO COUNTY*
Date Performed	*5/26/09*	Analysis Year	*EXISTING+PROJECT*
Analysis Time Period	*PM PEAK HOUR*		

Project Description	*ESTELLA RIVER VINEYARD PROJECT #08031*		
East/West Street:	*STATE ROUTE 46 EAST*	North/South Street:	*JARDINE ROAD*
Intersection Orientation:	*East-West*	Study Period (hrs):	*1.00*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*204*	*612*	*1*	*1*	*662*	*29*
Peak-Hour Factor, PHF	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*
Hourly Flow Rate, HFR (veh/h)	*221*	*665*	*1*	*1*	*719*	*31*
Percent Heavy Vehicles	*4*	--	--	*4*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*1*	*1*	*1*
Configuration	*L*		*TR*	*L*	*T*	*R*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*0*	*0*	*0*	*22*	*0*	*157*
Peak-Hour Factor, PHF	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*23*	*0*	*170*
Percent Heavy Vehicles	*4*	*4*	*4*	*4*	*4*	*4*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*1*	*0*	*1*	*1*
Configuration	*LT*		*R*	*LT*		*R*

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*L*	*LT*		*R*	*LT*		*R*
v (veh/h)	*221*	*1*	*0*		*0*	*23*		*170*
C (m) (veh/h)	*850*	*914*			*456*	*46*		*425*
v/c	*0.26*	*0.00*			*0.00*	*0.50*		*0.40*
95% queue length	*1.05*	*0.00*			*0.00*	*2.47*		*1.97*
Control Delay (s/veh)	*10.7*	*8.9*			*12.9*	*155.7*		*19.1*
LOS	*B*	*A*			*B*	*F*		*C*
Approach Delay (s/veh)	--	--				*35.4*		
Approach LOS	--	--				*E*		

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	DLD	Intersection	STATE ROUTE 46 E/JARDINE ROAD
Agency/Co.	ATE	Jurisdiction	SAN LUIS OBISPO COUNTY
Date Performed	5/26/09	Analysis Year	EX+PROJECT WITH IMPROVEMENTS
Analysis Time Period	PM PEAK HOUR		

Project Description	ESTELLA RIVER VINEYARD PROJECT #08031
East/West Street:	STATE ROUTE 46 EAST
North/South Street:	JARDINE ROAD
Intersection Orientation:	East-West
Study Period (hrs):	1.00

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	204	612	1	1	662	29
Peak-Hour Factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Hourly Flow Rate, HFR (veh/h)	221	665	1	1	719	31
Percent Heavy Vehicles	4	--	--	4	--	--
Median Type	Two Way Left Turn Lane					
RT Channelized			0			1
Lanes	1	2	0	1	2	1
Configuration	L	T	TR	L	T	R
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	0	0	0	22	0	157
Peak-Hour Factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Hourly Flow Rate, HFR (veh/h)	0	0	0	23	0	170
Percent Heavy Vehicles	4	4	4	4	4	4
Percent Grade (%)	0			0		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	1	0	1	1
Configuration	LT		R	LT		R

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L	L	LT		R	LT		R
v (veh/h)	221	1	0		0	23		170
C (m) (veh/h)	865	906			657	259		631
v/c	0.26	0.00			0.00	0.09		0.27
95% queue length	1.03	0.00			0.00	0.29		1.10
Control Delay (s/veh)	10.6	9.0			10.5	20.3		12.8
LOS	B	A			B	C		B
Approach Delay (s/veh)	--	--				13.7		
Approach LOS	--	--				B		

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*DLD*	Intersection	*STATE ROUTE 46 E/JARDINE ROAD*
Agency/Co.	*ATE*	Jurisdiction	*SAN LUIS OBISPO COUNTY*
Date Performed	*10/16/08*	Analysis Year	*CUMULATIVE (2030)*
Analysis Time Period	*PM PEAK HOUR*		

Project Description	*ESTELLA RIVER VINEYARD PROJECT #08031*
East/West Street: *STATE ROUTE 46 EAST*	North/South Street: *JARDINE ROAD*
Intersection Orientation: *East-West*	Study Period (hrs): *1.00*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*411*	*1650*	*2*	*0*	*1617*	*29*
Peak-Hour Factor, PHF	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*
Hourly Flow Rate, HFR (veh/h)	*446*	*1793*	*2*	*0*	*1757*	*31*
Percent Heavy Vehicles	*4*	--	--	*4*	--	--
Median Type	*Two Way Left Turn Lane*					
RT Channelized			*0*			*1*
Lanes	*1*	*2*	*0*	*1*	*2*	*1*
Configuration	*L*	*T*	*TR*	*L*	*T*	*R*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*0*	*0*	*0*	*26*	*0*	*349*
Peak-Hour Factor, PHF	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*28*	*0*	*379*
Percent Heavy Vehicles	*4*	*4*	*4*	*4*	*4*	*4*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*1*	*0*	*1*	*1*
Configuration	*LT*		*R*	*LT*		*R*

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*L*	*LT*		*R*	*LT*		*R*
v (veh/h)	*446*	*0*	*0*		*0*	*28*		*379*
C (m) (veh/h)	*344*	*332*			*278*			*287*
v/c	*1.30*	*0.00*			*0.00*			*1.32*
95% queue length	*61.82*	*0.00*			*0.00*			*56.13*
Control Delay (s/veh)	*591.6*	*15.8*			*17.9*			*642.3*
LOS	*F*	*C*			*C*			*F*
Approach Delay (s/veh)	--	--						
Approach LOS	--	--						

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	DLD	Intersection	STATE ROUTE 46 E/JARDINE ROAD
Agency/Co.	ATE	Jurisdiction	SAN LUIS OBISPO COUNTY
Date Performed	5/26/09	Analysis Year	CUMULATIVE (2030) +PROJECT
Analysis Time Period	PM PEAK HOUR		

Project Description	ESTELLA RIVER VINEYARD PROJECT #08031
East/West Street:	STATE ROUTE 46 EAST
North/South Street:	JARDINE ROAD
Intersection Orientation:	East-West
Study Period (hrs):	1.00

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	421	1650	2	0	1617	30
Peak-Hour Factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Hourly Flow Rate, HFR (veh/h)	457	1793	2	0	1757	32
Percent Heavy Vehicles	4	--	--	4	--	--
Median Type	Two Way Left Turn Lane					
RT Channelized			0			1
Lanes	1	2	0	1	2	1
Configuration	L	T	TR	L	T	R
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	0	0	0	27	0	355
Peak-Hour Factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Hourly Flow Rate, HFR (veh/h)	0	0	0	29	0	385
Percent Heavy Vehicles	4	4	4	4	4	4
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	1	0	1	1
Configuration	LT		R	LT		R

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L	L	LT		R	LT		R
v (veh/h)	457	0	0		0	29		385
C (m) (veh/h)	344	332			278			287
v/c	1.33	0.00			0.00			1.34
95% queue length	66.77	0.00			0.00			58.82
Control Delay (s/veh)	646.4	15.8			17.9			678.0
LOS	F	C			C			F
Approach Delay (s/veh)	--	--						
Approach LOS	--	--						

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	DLD	Intersection	STATE ROUTE 46 E/JARDINE ROAD
Agency/Co.	ATE	Jurisdiction	SAN LUIS OBISPO COUNTY
Date Performed	10/16/08	Analysis Year	EXISTING
Analysis Time Period	FRIDAY PM PEAK HOUR		

Project Description	ESTELLA RIVER VINEYARD PROJECT #08031
East/West Street:	STATE ROUTE 46 EAST
North/South Street:	JARDINE ROAD
Intersection Orientation:	East-West
Study Period (hrs):	1.00

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	174	829	1	1	1010	30
Peak-Hour Factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Hourly Flow Rate, HFR (veh/h)	189	901	1	1	1097	32
Percent Heavy Vehicles	4	--	--	4	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	1	1	0	1	1	1
Configuration	L		TR	L	T	R
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	0	0	0	29	0	134
Peak-Hour Factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Hourly Flow Rate, HFR (veh/h)	0	0	0	31	0	145
Percent Heavy Vehicles	4	4	4	4	4	4
Percent Grade (%)	0			0		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	1	0	1	1
Configuration	LT		R	LT		R

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L	L	LT		R	LT		R
v (veh/h)	189	1	0		0	31		145
C (m) (veh/h)	611	745			333	18		257
v/c	0.31	0.00			0.00	1.72		0.56
95% queue length	1.34	0.00			0.00	10.80		3.65
Control Delay (s/veh)	13.5	9.8			15.8	1876		36.7
LOS	B	A			C	F		E
Approach Delay (s/veh)	--	--				360.7		
Approach LOS	--	--				F		

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*DLD*	Intersection	*STATE ROUTE 46 E/JARDINE ROAD*
Agency/Co.	*ATE*	Jurisdiction	*SAN LUIS OBISPO COUNTY*
Date Performed	*10/16/08*	Analysis Year	*EXISTING+PROJECT*
Analysis Time Period	*FRIDAY PM PEAK HOUR*		

Project Description	*ESTELLA RIVER VINEYARD PROJECT #08031*
East/West Street: *STATE ROUTE 46 EAST*	North/South Street: *JARDINE ROAD*
Intersection Orientation: *East-West*	Study Period (hrs): *1.00*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*184*	*829*	*1*	*1*	*1010*	*31*
Peak-Hour Factor, PHF	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*
Hourly Flow Rate, HFR (veh/h)	*199*	*901*	*1*	*1*	*1097*	*33*
Percent Heavy Vehicles	*4*	--	--	*4*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*1*	*1*	*1*
Configuration	*L*		*TR*	*L*	*T*	*R*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*0*	*0*	*0*	*30*	*0*	*140*
Peak-Hour Factor, PHF	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*32*	*0*	*152*
Percent Heavy Vehicles	*4*	*4*	*4*	*4*	*4*	*4*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*1*	*0*	*1*	*1*
Configuration	*LT*		*R*	*LT*		*R*

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*L*	*LT*		*R*	*LT*		*R*
v (veh/h)	*199*	*1*	*0*		*0*	*32*		*152*
C (m) (veh/h)	*611*	*745*			*333*	*17*		*257*
v/c	*0.33*	*0.00*			*0.00*	*1.88*		*0.59*
95% queue length	*1.44*	*0.00*			*0.00*	*11.63*		*4.03*
Control Delay (s/veh)	*13.7*	*9.8*			*15.8*	*2172*		*38.8*
LOS	*B*	*A*			*C*	*F*		*E*
Approach Delay (s/veh)	--	--				*409.7*		
Approach LOS	--	--				*F*		

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*DLD*	Intersection	*STATE ROUTE 46 E/JARDINE ROAD*
Agency/Co.	*ATE*	Jurisdiction	*SAN LUIS OBISPO COUNTY*
Date Performed	*5/26/09*	Analysis Year	*EX+PROJECT WITH IMPROVEMENTS*
Analysis Time Period	*FRIDAY PM PEAK HOUR*		

Project Description *ESTELLA RIVER VINEYARD PROJECT #08031*	
East/West Street: *STATE ROUTE 46 EAST*	North/South Street: *JARDINE ROAD*
Intersection Orientation: *East-West*	Study Period (hrs): *1.00*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*184*	*829*	*1*	*1*	*1010*	*31*
Peak-Hour Factor, PHF	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*
Hourly Flow Rate, HFR (veh/h)	*199*	*901*	*1*	*1*	*1097*	*33*
Percent Heavy Vehicles	*4*	--	--	*4*	--	--
Median Type	*Two Way Left Turn Lane*					
RT Channelized			*0*			*1*
Lanes	*1*	*2*	*0*	*1*	*2*	*1*
Configuration	*L*	*T*	*TR*	*L*	*T*	*R*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*0*	*0*	*0*	*30*	*0*	*140*
Peak-Hour Factor, PHF	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*32*	*0*	*152*
Percent Heavy Vehicles	*4*	*4*	*4*	*4*	*4*	*4*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*1*	*0*	*1*	*1*
Configuration	*LT*		*R*	*LT*		*R*

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*L*	*LT*		*R*	*LT*		*R*
v (veh/h)	*199*	*1*	*0*		*0*	*32*		*152*
C (m) (veh/h)	*620*	*737*			*550*	*198*		*475*
v/c	*0.32*	*0.00*			*0.00*	*0.16*		*0.32*
95% queue length	*1.41*	*0.00*			*0.00*	*0.57*		*1.40*
Control Delay (s/veh)	*13.5*	*9.9*			*11.5*	*26.7*		*16.1*
LOS	*B*	*A*			*B*	*D*		*C*
Approach Delay (s/veh)	--	--				*18.0*		
Approach LOS	--	--				*C*		

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*DLD*	Intersection	*STATE ROUTE 46 E/JARDINE ROAD*
Agency/Co.	*ATE*	Jurisdiction	*SAN LUIS OBISPO COUNTY*
Date Performed	*10/16/08*	Analysis Year	*CUMULATIVE (2030)*
Analysis Time Period	*FRIDAY PM PEAK HOUR*		

Project Description	*ESTELLA RIVER VINEYARD PROJECT #08031*		
East/West Street:	*STATE ROUTE 46 EAST*	North/South Street:	*JARDINE ROAD*
Intersection Orientation:	*East-West*	Study Period (hrs):	*1.00*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*371*	*2089*	*2*	*0*	*2322*	*31*
Peak-Hour Factor, PHF	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*
Hourly Flow Rate, HFR (veh/h)	*403*	*2270*	*2*	*0*	*2523*	*33*
Percent Heavy Vehicles	*4*	--	--	*4*	--	--
Median Type	*Two Way Left Turn Lane*					
RT Channelized			*0*			*1*
Lanes	*1*	*2*	*0*	*1*	*2*	*1*
Configuration	*L*	*T*	*TR*	*L*	*T*	*R*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*0*	*0*	*0*	*34*	*0*	*315*
Peak-Hour Factor, PHF	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*36*	*0*	*342*
Percent Heavy Vehicles	*4*	*4*	*4*	*4*	*4*	*4*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*1*	*0*	*1*	*1*
Configuration	*LT*		*R*	*LT*		*R*

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*L*	*LT*		*R*	*LT*		*R*
v (veh/h)	*403*	*0*	*0*		*0*	*36*		*342*
C (m) (veh/h)	*170*	*215*			*193*			*158*
v/c	*2.37*	*0.00*			*0.00*			*2.16*
95% queue length	*121.48*	*0.00*			*0.00*			*97.27*
Control Delay (s/veh)	*2529*	*21.7*			*23.7*			*2166*
LOS	*F*	*C*			*C*			*F*
Approach Delay (s/veh)	--	--						
Approach LOS	--	--						

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	DLD	Intersection	STATE ROUTE 46 E/JARDINE ROAD
Agency/Co.	ATE	Jurisdiction	SAN LUIS OBISPO COUNTY
Date Performed	5/26/09	Analysis Year	CUMULATIVE (2030) +PROJECT
Analysis Time Period	FRIDAY PM PEAK HOUR		

Project Description	ESTELLA RIVER VINEYARD PROJECT #08031
East/West Street:	STATE ROUTE 46 EAST
North/South Street:	JARDINE ROAD
Intersection Orientation:	East-West
Study Period (hrs):	1.00

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	381	2089	2	0	2322	32
Peak-Hour Factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Hourly Flow Rate, HFR (veh/h)	414	2270	2	0	2523	34
Percent Heavy Vehicles	4	--	--	4	--	--
Median Type	Two Way Left Turn Lane					
RT Channelized			0			1
Lanes	1	2	0	1	2	1
Configuration	L	T	TR	L	T	R
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	0	0	0	35	0	321
Peak-Hour Factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Hourly Flow Rate, HFR (veh/h)	0	0	0	38	0	348
Percent Heavy Vehicles	4	4	4	4	4	4
Percent Grade (%)	0			0		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	1	0	1	1
Configuration	LT		R	LT		R

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L	L	LT		R	LT		R
v (veh/h)	414	0	0		0	38		348
C (m) (veh/h)	170	215			193			158
v/c	2.44	0.00			0.00			2.20
95% queue length	126.89	0.00			0.00			100.21
Control Delay (s/veh)	2645	21.7			23.7			2233
LOS	F	C			C			F
Approach Delay (s/veh)	--	--						
Approach LOS	--	--						